

of performing automatic adjustment will be described in more detail with respect to the preferred embodiment of Figure 3". However, the applicant's argument is not persuasive because "correlate and adjust circuit" reads on figure 3, which is another invention.

Applicant respectfully disagrees with the examiner. It is believed that the examiner has misinterpreted the quoted phrase. Figure 2 is the invention shown in broad form which has elements 12 and 14 responsive to the talent signal from 10 to delay and adjust the gain thereof, element 13 to combine the delayed and adjusted talent signal with the program signal from 18 to provide the mix minus audio to the talent at 9. Figure 3 (and Figure 4) contains these same elements, i.e. shows the same invention, along with improvements to the invention. Claim 1 is generic. Claim 1 claims the invention of 12, 14 and 13 cooperating as described and claimed with the signals from 10 and 18 to produce the signal applied to 9. Figure 3 shows the same elements 12, 14 and 13 cooperating as described and claimed with the same signals from 10 and 18 to produce the same signal applied to 9. Figure 3 adds to the invention the improvement of 15. Claim 1 recites 12, 14 and 13 cooperating as described with the signals from 10 and 18 to produce the signal applied to 9. Claims 5 etc. add the improvement of 15. Reconsideration of this rejection is respectfully requested.

The examiner pointed to "pitch correction" of claim 39, requesting clarification. The examiner's attention is called to page 13 of the disclosure which teaches that the delay 12 have pitch correction circuitry and noting that a suitable delay with pitch shifting is described in application serial number 08/322,069, now U.S. Patent 5,920,842.

The examiner pointed to "the amount of delay is responsive to the mix minus signal" in respect to claims 5, 7, 24, 26, 40 - 43, 46 - 48 and 50, requesting clarification. The examiner's attention is called to Figure 2 where element 16 is coupled to the mix minus signal out of

element 13. At page 15, line 3 of the disclosure such responsiveness is described "... it is preferred to inspect either the IFB (or program) audio from 18, or the mix minus audio from 13 with the adjustment circuit 16, thus allowing adjustment of the delay 12 and/or gain 14 automatically in response to the signal(s)". In addition, the description of the operation of 15a of Figure 3 similarly describes adjusting the amount of delay 12 in response to the mix minus signal out of 13. The connections of 16 of Figure 2 and 15a of Figure 3 to the mix minus signal out of 13 is shown by dashed lines.

2, 3, Claims 1-53 were rejected under 35 U.S.C. 102(b) as being anticipated by Kirby. Applicant notes that claims 5, 7, 19, 24, 29 and 38 were previously indicated allowable if rewritten in independent form. These claims were rewritten in the previous response, and the rewritten claims are now being rejected. Applicant respectfully disagrees with the rejection of Claims 1-53 for the reasons below.

In respect to claim 1 the examiner recites:

Kirby discloses a cancellation circuit responsive to the talent signal (12) to delay the talent signal in a variable delay (22) and to gain adjust the talent signal in delayed or undelayed form in a variable gain circuit (32 and 38) thereby providing a cancellation signal (output of 38), with the amount of the gain responsive to operator adjustment (mix minus signal is fed back to the filter which adjusts gain); a combining circuit (40) responsive to the feedback signal without further substantial variable delay (no compensation adjustment is made to delay 21 when small delays are detected) and the cancellation signal (output of 38) to provide the mix minus signal (output of 40).

Applicant respectfully disagrees with some of the above interpretations of Kirby's operation. It is noted that the mixed signal at 14 is already delayed by the broadcast chain

(page 1, 4th paragraph), thus is a delayed feedback signal. The delayed feedback signal is measured by 10 and further delayed by variable delay 21. Thus the delayed feedback signal 14 is compared by 10 and the further variably delayed signal is operated on by 40.

4. The elements 32 and 38 operate only on the delayed signal 12. Applicant can find no mention of delay 22 being eliminated to allow 32 to operate on the undelayed signal 12. In addition, Applicant can find no mention of operator adjustment being involved in the feedback of the mix minus signal from 34 to elements 32 and 38. In the event Applicant has overlooked some teaching in Kirby which supports either the removal of 22 or operator involvement in the feedback of the mix minus signal 34, Applicant would greatly appreciate the examiner's indulgence in pointing out such.

In addition, applicant disagrees that the adaptive filter 32, as taught by Kirby, performs the adjustment of gain as called for in applicant's claims. The purpose of filter 32 is to automatically correct for remaining small delays and to filter the unwanted signal (delayed talent signal) prior to subtracting from the mixed signal (see page 4, paragraph 2). Further, the coefficients of 32 are responsive to the delayed output signal 34, rather than to the delayed talent signal (applicant does not dispute that the delayed talent signal is filtered by 32). The differences in Kirby's operation pointed to above ensure that the claims do not read on Kirby.

Some of the more obvious claim distinctions over Kirby are pointed out below. Parenthetical references to Kirby's numbered elements corresponding to the claim elements as pointed out by the examiner are provided for convenience, however this is not to be construed as an admission by applicant that such relationship is correct and proper, especially in respect to the operation of elements 10, 22 and 32. Applicant merely points out that even if the correspondences given below are assumed correct, the claims still do not read on Kirby.

2. Claim 1 calls for providing a mix minus signal from a delayed feedback signal (14) the

combining circuit (40) is to be responsive to said feedback signal (14) without further substantial variable delay. Kirby's delay 21 provides further substantial delay to 14, thus Kirby does not meet the claim language. It is noted that an invention which can perform the same task as a prior art device but do so with fewer parts (i.e. without 21 and 32) is a proper patentable improvement. In addition, Claim 1 calls for the delay or gain to be responsive to operator adjustment. As pointed out above, applicant does not find operator adjustment involved in the feedback of 34 to 32 and 38.

Claims 2-3 have similar language to claim 1 as pointed out above.

Claim 4 depends on claims 1-3.

Claim 5 calls for the amount of delay of the talent signal to be responsive to the mix minus signal (34) and the amount of gain to be responsive to the feedback signal (14). These features are believed missing from Kirby.

Claim 6 depends on claims 1-3. In addition claim 6 calls for the amount of gain (of the talent signal) to be responsive to the feedback signal. This feature is believed missing from Kirby.

Claim 7 calls for the amount of delay or gain of the talent signal (delay 22, gain 32 and 38) to be responsive to operator adjustment. In addition, the claim calls for the amount of delay of the talent signal (delay 22) to be responsive to the mix minus signal (34). Applicant believes these features are missing from Kirby.

Claims 8-18 depend on claims 1-3. In addition they contain similar requirements regarding the responsiveness of delay and gain to various signals which are believed missing from Kirby. For example in Claim 8 correlation of mix minus (34) and talent (12).

Claim 19, similar to Claim 1 calls for the amount of delay or gain responsive to operator adjustment. This is believed missing from Kirby.

Claim 20 calls for delaying the talent signal (delay 22) by a varying delay amount in continuing response to the variable amount of delay of the feedback signal (14) and changing that delay from time to time. The examiner states that this is inherent since delay measuring system 10 continuously monitors incoming signals. Applicant respectfully points out that continuously monitoring does not equate with the variable delay being in continuing response. At Kirby page 6, second paragraph, the delay measuring system 10 and its control of the variable delays is described: "When small changes in delay are detected the system makes no compensation adjustment ...". Consequently, while the delay of the signals may be continuously monitored, the change of the variable delays (21 and 22) is not continuous.

Claim 21, similar to Claim 20, calls for delaying the talent signal (delay 22) by a varying delay amount in continuing response to the variable relative timing of the feedback signal (14) and talent signal (12). This is believed missing from Kirby.

Claim 22, similar to Claim 20, calls for delaying the talent signal (delay 22) by a varying delay amount in continuing response to the relative delay of the feedback signal (14) and talent signal (12).

Claim 23 depends from 20-23.

Claim 24 calls for the varying delay (delay 22) of the talent signal to be responsive to the mix minus signal (34). This is believed missing from Kirby.

Claim 25 depends from 20-22, and in addition calls for the level of step b) (32 and 38 per the examiner) to be responsive to the feedback signal (14). This is believed missing from Kirby.

Claim 26 calls for the varying delay amount (delay 22) of the talent signal to be responsive to the mix minus signal (34). This is believed missing from Kirby.

Claim 27 depends from 20-22.

Claim 28 depends from 20-22 and in addition calls for the varying delay (delay 22) of the talent signal to be responsive to a correlation of the feedback signal (14) and the talent signal where the talent signal is in delayed form. In Kirby the delayed talent signal is only applied to 32. the delay measurement 10 only uses the talent signal in undelayed form.

Claim 29 calls for one of the variable delay of the talent signal (22) or the level adjustment (32 & 38) to be responsive to the mix minus signal (34) and the talent signal in undelayed form (12). The delay (22) is not responsive to the mix minus signal (34) and the level adjustment (32 & 38) is not responsive to the undelayed talent signal (12).

Claims 30 - 37 depend from 20-22, and recite additional steps similar to claims 8-18.

Claim 38 calls for providing a cancellation signal of a known level with the level being automatically adjusted in response to the mix minus signal (34) and the talent signal in delayed form. The examiner states that the coefficients of the filter are changed if there are any remaining small delays between feedback and talent signal, however the measure of delay by 10 is responsive to the undelayed talent signal and 10 does not change the coefficients of 32. The coefficients of 32 are controlled by the delayed mix minus signal 34 (see page 4, 2nd paragraph).

Claim 39 depends from 20-22, and adds the feature of pitch correction as discussed herein with respect to the 112 rejection.

Claims 40 & 41 call for the amount of delay (22) to be responsive to the mix minus signal (34) and the amount of gain (32) to be responsive to the feedback signal (14). This is believed missing from Kirby.

Claim 42 & 43 call for the amount of delay (22) and the amount of gain (32) to be responsive to the mix minus signal (34). This is believed missing from Kirby.

Claim 44 & 45 call for the gain (coefficients of 32) to be automatically adjusted in re-

sponse to the mix minus signal (34) and the talent signal in delayed form. In Kirby the adjustment of the coefficients is in response to the delayed mix minus signal (34), but not the delayed talent signal.

Claims 46 & 47 call for the amount of delay (22) to be responsive to the mix minus signal (34) and the level step (32) to be responsive to the feedback signal (14). This is believed missing from Kirby.

Claim 48 & 49 call for the varying delay amount (22) and the level step (32) to be responsive to the mix minus signal (34). This is believed missing from Kirby.

Claims 50 & 51 call for at least one of the varying delay amount (22) and level step (32) to be responsive to the mix minus signal (34) and talent signal in undelayed form (12). This is believed missing from Kirby.

Claims 52 & 53 call for the level step to be automatically adjusted in response to the mix minus signal (34) and the talent signal in delayed form. See Claim 38. This is believed missing from Kirby.

4 Refer to the discussion of the correlation circuit, further substantial variable delay and operating continuously and repeatedly under section 1 above.

In that the claims are believed allowable over Kirby for at least the reasons set forth above, reconsideration of the rejections thereof and passing the application to allowance is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. Carl Cooper', with a long horizontal flourish extending to the right.

J. Carl Cooper
Reg. #34,56



CERTIFICATE UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited this day with the United States Postal Service postage prepaid as First Class Mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Date July 14 2000

J. Carl Cooper, Reg. #34,568

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